

SECTION 07530

ELASTOMERIC MEMBRANE ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Elastomeric roofing membrane, adhered conventional application.
- B. Insulation, flat and tapered.
- C. Vapor retarder.
- D. Flashings.

1.02 RELATED REQUIREMENTS

- A. Section 08620 - Unit Skylights: Skylight frame, integral curb, and counterflashing.

1.03 REFERENCE STANDARDS

- A. ASTM C 177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus; 2004.
- B. ASTM C 578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2007.
- C. ASTM D 624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers; 2000 (Reapproved 2007).
- D. ASTM D 4637 - Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane; 2004.
- E. NRCA ML104 - The NRCA Roofing and Waterproofing Manual; National Roofing Contractors Association; Fifth Edition, with interim updates.
- F. UL (RMSD) - Roofing Materials and Systems Directory; Underwriters Laboratories Inc.; current edition.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate with installation of associated counterflashings installed under other sections.
- B. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all affected installers; review preparation and installation procedures and coordination and scheduling necessary for related work.

1.05 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating membrane materials, flashing materials, insulation, surfacing, and fasteners.
- C. Shop Drawings: Indicate joint or termination detail conditions and conditions of interface with other materials.
- D. Manufacturer's Installation Instructions: Indicate membrane seaming precautions and perimeter conditions requiring special attention.
- E. Warranty: Submit manufacturer warranty and ensure forms have been completed in VCCS's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

- A. Perform work in accordance with NRCA Roofing and Waterproofing Manual and manufacturer's instructions.
 - 1. Maintain one copy on site.
- B. Applicator Qualifications: Company specializing in performing the work of this section approved by manufacturer.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact.
- B. Store products in weather protected environment, clear of ground and moisture.

1.08 FIELD CONDITIONS

- A. Do not apply roofing membrane during unsuitable weather.
- B. Do not apply roofing membrane when ambient temperature is below 40 degrees F or above 90 degrees F.
- C. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

1.09 WARRANTY

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Provide 15 year manufacturer's material and labor warranty to cover failure to prevent penetration of water for the portions of work completed under this contract.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. EPDM Membrane Materials:
 - 1. Carlisle SynTec: www.carlisle-syntec.com.
 - 2. Firestone Building Products Co: www.firestonebpco.com.
 - 3. GenFlex Roofing Systems: www.genflex.com.
 - 4. Substitutions: See Section 01600 - Product Requirements.
- B. Insulation:
 - 1. Atlas Roofing Corporation: www.atlasroofing.com.
 - 2. GAF Materials Corporation: www.gaf.com.
 - 3. Dow Chemical Co: www.dow.com.
 - 4. Owens Corning Corp: www.owenscorning.com.
 - 5. Substitutions: See Section 01600 - Product Requirements.

2.02 ROOFING - UNBALLASTED APPLICATIONS

- A. Elastomeric Membrane Roofing: One ply membrane, fully adhered, over vapor retarder and insulation.
- B. Roofing Assembly Requirements:
 - 1. Roof Covering External Fire-Resistance Classification: UL Class A.
- C. Acceptable Insulation Types - Tapered Application: Any of the types specified.
 - 1. Tapered extruded polystyrene board. Match thickness and slope of existing roof insulation.

2.03 ROOFING MEMBRANE AND ASSOCIATED MATERIALS

- A. Membrane: Ethylene-propylene-diene-terpolymer (EPDM); externally reinforced with fabric; complying with minimum properties of ASTM D 4637.
 - 1. Thickness: 0.045 inch.
 - 2. Color: Black.
 - 3. Tear Strength: 150 lbf/in, measured in accordance with ASTM D 624.
- B. Seaming Materials: As recommended by membrane manufacturer.
- C. Vapor Retarder: Reinforced Kraft paper laminate complying with requirements of fire rating classification; compatible with roofing and insulation materials.
 - 1. Fire-retardant adhesive.
- D. Flexible Flashing Material: Same material as membrane; conforming to the following:
 - 1. Tensile Strength: 1,200 psi.
 - 2. Elasticity: 50 percent with full recovery without set.
 - 3. Color: Black.

2.04 INSULATION

- A. Extruded Polystyrene Board Insulation: ASTM C 578, Type X; Extruded expanded polystyrene board with natural skin surfaces; with the following characteristics:
 - 1. Board Size: 48 x 96 inch.
 - 2. Board Thickness: 2 inches.
 - 3. Tapered Board: Slope as indicated; minimum thickness 1/2 in; fabricate of fewest layers possible.
 - 4. Thermal Conductivity (k factor) at 25 degrees F: 0.18 as determined by ASTM C 177.
 - 5. Compressive Resistance: 25 psi.

2.05 ACCESSORIES

- A. Cant Strips: Wood; pressure preservative treated.
- B. Insulation Joint Tape: Glass fiber reinforced type as recommended by insulation manufacturer, compatible with roofing materials; 6 inches wide; self adhering.
- C. Insulation Fasteners: Appropriate for purpose intended and approved by roofing manufacturer.
 - 1. Length as required for thickness of insulation material and penetration of deck substrate, with metal washers.
- D. Membrane Adhesive: As recommended by membrane manufacturer.
- E. Surface Conditioner for Adhesives: Compatible with membrane and adhesives.
- F. Insulation Adhesive: As recommended by insulation manufacturer.
- G. Sealants: As recommended by membrane manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces and site conditions are ready to receive work.
- B. Verify deck is supported and secure.
- C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.
- D. Verify deck surfaces are dry and free of snow or ice.
- E. Verify that roof openings, curbs, and penetrations through roof are solidly set, and cant strips are in place.

3.02 VAPOR RETARDER AND INSULATION - UNDER MEMBRANE

- A. Apply vapor retarder to deck surface with adhesive in accordance with manufacturer's instructions.
 - 1. Extend vapor retarder under cant strips and blocking to deck edge.
 - 2. Install flexible flashing from vapor retarder to air seal material of wall construction, lap and seal to provide continuity of the air barrier plane.
- B. Ensure vapor retarder is clean and dry, continuous, and ready for application of insulation.
- C. Attachment of Insulation:
 - 1. Mechanically fasten insulation to deck in accordance with roofing manufacturer's instructions.
- D. Lay subsequent layers of insulation with joints staggered minimum 6 inch from joints of preceding layer.
- E. Place tapered insulation to the required slope pattern in accordance with manufacturer's instructions.
- F. On metal deck, place boards parallel to flutes with insulation board edges bearing on deck flutes.
- G. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.
- H. Tape joints of insulation in accordance with roofing and insulation manufacturers' instructions.
- I. Do not apply more insulation than can be covered with membrane in same day.

3.03 MEMBRANE APPLICATION

- A. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.
- B. Shingle joints on sloped substrate in direction of drainage.
- C. Fully Adhered Application: Apply adhesive to substrate at rate of manufacturer's recommended gal/square. Fully embed membrane in adhesive except in areas directly over or within 3 inches of expansion joints. Fully adhere one roll before proceeding to adjacent rolls.
- D. Overlap edges and ends and seal seams by contact adhesive, minimum 3 inches. Seal permanently waterproof. Apply uniform bead of sealant to joint edge.
- E. At intersections with vertical surfaces:
 - 1. Extend membrane over cant strips and up a minimum of 4 inches onto vertical surfaces.
 - 2. Fully adhere flexible flashing over membrane and up to nailing strips.
 - 3. Secure flashing to nailing strips at 4 inches on center.
- F. Around roof penetrations, seal flanges and flashings with flexible flashing.
- G. Coordinate installation of roof drains and sumps and related flashings.
- H. Coordinate installation of associated counterflashings installed under other sections.

3.04 FIELD QUALITY CONTROL

- A. See Section 01400 - Quality Requirements, for general requirements for field quality control and inspection.
- B. Require site attendance of roofing and insulation material manufacturers daily during installation of the Work.

3.05 CLEANING

- A. Remove bituminous markings from finished surfaces.

- B. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.
- C. Repair or replace defaced or damaged finishes caused by work of this section.

3.06 PROTECTION

- A. Protect installed roofing and flashings from construction operations.
- B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

END OF SECTION